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A topological approach to infrastructure: Political topography, topology and the port of Dar es Salaam

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journals.sagepub.com/home/epd**Jana Hönke**

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Abstract

Economic infrastructure hubs, such as ports, are crucial sites for exploring new political geographies. In such environments, mobilities are enabled and rigidly channelled premised on the stasis of the port-as-checkpoint. Such nodes are part of an ever-growing political geography of zones that requires more attention. This article proposes a ‘topographical’ approach – a combined heuristic drawing from political topography and topology – to comprehend more fully the transformations in the political geographies of large-scale infrastructures. The cardinal nature of the port of Dar es Salaam makes it a crucial site through which to illustrate the purchase of this framework. The topographical analysis puts forward the port of Dar as archipelago of global territories, within which heterogeneous actors claim graduated authority. Drawing on topology, the article shows what is folded into the port, constantly shaping not only who governs but, more importantly, how power and authority are exercised. It will be shown how imaginaries of the port – as gateway, seamless space, and modernity ‘from scratch’ – as much as new technological devices work to produce historically and geographically distinct political geographies, and indeed bring new ones into being.

Keywords

political topography, topology, method, infrastructure, ports, Africa, Tanzania

Introduction

In February 2013, the President of Tanzania Jakaya Kikwete unveiled the Big Results Now (BRN) initiative. In addition to articulating a vision of Tanzania in 2025 professedly chiselled according to the ‘Malaysian Model of Development’,¹ BRN defined transport as

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one of six key result areas. A roadmap for the transport sector followed, which largely reproduced the now dominant parlance amidst the Dar es Salaam port community and international donors. The roadmap considered efficiency and redrawing traffic flows as almost exact synonyms. Superposed to maps of the existing layout, red and orange-coloured arrows and lines heralded a new ‘single-flow system’ purportedly capable of reducing truck turnaround time from six to two hours, and shattering current barriers to freight flows (GoT, 2013). In line with the World Bank funded ‘Maritime Gateway’ project for Dar es Salaam,² these visions also aspire to overturn how security checks and weighbridge procedures were performed across far-reaching development corridors, thus making the presence of the port immediately ‘felt’ in operations carried out in distant places. Fresh topological imaginaries were thus projected into public discussion, which aspired to reformulate the purview of port operations. Embedded in the maps, also travelled topographical claims to spatial authority broadcast by the port bureaucracy.

Such large-scale plans for infrastructure projects have proliferated in Africa and elsewhere in recent years. A massive ‘respacing’ (Engel and Nugent, 2010) is under way that however remains little understood. In order to address this, the article examines the port of Dar es Salaam, following Chalfin’s lead in the need to conduct research ‘wherever power in late-modernity is concentrated and renewed yet works to hide itself’ (2010a: 4; Ferguson, 1990; Mitchell, 2002). The article interrogates the port as space that dispersed networks of production and consumption bring into being. Such nodes of infrastructure serve as pertinent empirical sites through which to learn more about new political geographies: as argued by Easterling (2014: 15), in the contemporary world, ‘some of the most radical changes to the globalizing world are being written, not in the language of law and diplomacy, but rather in the spatial formation of infrastructure’. These become particularly visible, and visible in new ways, in ex-centric sites in Africa, in which the Western narrative of modernity is but one amongst others informing people’s ways of imagining and constructing the world (Comaroff and Comaroff, 2012).

This article suggests a combined methodology that draws from political topography and political topology to comprehend the transformation of political geographies of infrastructure hubs. To reinvigorate how we think about space, it has been disassociated from ideas of stasis and boundedness, and come to be understood as fluid, embracing relationality, heterogeneity and change (Massey, 2005: 13). Yet while spatialities are ‘stories so far’ (2005: 9), venturing to the other extreme – in Massey’s words an ‘extravaganza of non-Euclidian, black-hole [...] previously topologically improbable evocations’ (2005: 13) – must be avoided. A productive approach, we suggest, is somewhere in between.

The article illustrates the purchase of a combined, *topological* methodology with regard to the political geography of the port of Dar es Salaam. Our topographical analysis puts forward the port as archipelago of global territories within which heterogeneous actors claim authority. Drawing on topology, the article shows what is folded into the port and shapes who governs, but also how power and authority are exercised, and from where, and the ways in which this has been made possible. Imaginaries – of the port as gateways and seamless space, and of modernity ‘from scratch’ – as much as new technological devices – international standards and electronic devices – work to produce historically and geographically distinct political geographies, and indeed bring new ones into being.

To substantiate this argument, the article draws on the findings from interviews and participant observation with a variety of port stakeholders involved in clearing and transporting cargo from and to the port of Dar es Salaam, including the port authority.

In addition, it builds upon a review of the narratives and claims to authority reflected in policy papers and expert reports produced by the port authority and international donors over the past five years until 2016, which are complemented with sources from Tanzanian newspapers. Fieldwork was carried out in the spring of 2015.

The article first analyses existing literature on infrastructure investment and political spatiality, and then develops a heuristic lens drawing from both political topography and topology. The third section introduces the port of Dar, and the fourth one demonstrates the archipelago-like territoriality of the port and hybrid topography of regulation. The fifth section unfolds a topological analysis of Dar port that features three elements: Imaginaries of gateways, new technical devices, and Dubai-style modernity 'from scratch'. The conclusion summarizes the argument and enumerates the benefits implied in drawing from political topography and topology to study the political spatialities of large-scale economic infrastructures.

New political geographies and nodes of infrastructure

Transcontinental mobilities are premised on the stasis of ports. Growing mobility, such as the explosion of container shipping from the 1960s, depends on similarly growing 'multiple fixities or moorings often on a substantial physical scale that enable the fluidities of liquid modernity' (Sheller and Urry, 2006: 210). As much as capital is not footless, but builds on offices, national affiliations, off-shore zones and ports, territoriality is not vanishing but remains crucial for enabling globality for some, while foreclosing others (Elden, 2005; Jessop et al., 2008). Recent literature on enclaves and zones also indicates the continuing importance of political topography. It provides powerful tools for mapping processes of re-territorialization, such as with offshore financial centres, technological zones of extraction and other 'global territories' (Opitz and Tellmann, 2012) such as ports. Some of these nodes have received attention within political geography and international relations (IR) for how they are linked to broader political projects (Barry, 2013; Hönke, 2013; Swyngedouw, 2007). With regard to ports, Chalfin posits that '[i]n Africa, as elsewhere, ports are a telling indicator of the tenor of political power and the contests and shifting fortunes among ruling groups' (2010b: 573). At times, large-scale infrastructure projects reify and reinforce state authority but supply chain security also decouples state borders from traditional state territory. Among others, such bordering operates through the creation of exceptional zones or 'secure areas' in which domestic laws and rights are mediated or suspended (Cowen, 2014: 81). Ports exemplify such zones and are thus crucial sites for exploring multifaceted transformations of power and authority.

The challenge in analysing such zones is the proclivity to reproduce the idea that they are territories closed off from the local environment; an idea that has been prominent in the literature on enclaves (e.g. Ferguson, 2005). Oil and mining enclaves, according to this narrative, were closed off from the local population through the practices of security forces and ever more sophisticated security technology. However, even enclaves of extraction are very much connected to the world around them. They host bubbles of governance characterized by a proliferation of transnational standards, technologies and professionals (Hönke, 2013). Considerable work is indeed required to disembed them from their surroundings, and make their entanglements invisible (Appel, 2012). At the same time, enclaved spaces with graduated sovereignty (Ong, 2006) have become a typical feature of postcolonial geographies. While narratives of political legitimization keep referencing the idea of an all-encompassing state, 'development' is more and more enacted in transnationally connected and differentially bounded zones (Sidaway, 2007). For ports,

such a mixture of dis-embedding and connecting is evident. Thus an energetic and flexible approach to the political geography of economic infrastructure hubs is required.

A ‘topographical’ methodology

With Massey (2005: 99–100), power-geometries are geometries of relations that include the structuring of space through both flows and enclosure, both being differentially empowering and disempowering. Together, flows and enclosures create proximity and distance; distances that are not necessarily visible in terms of metrics but may be imagined, or felt. Two distinct traditions have tended to focus on one or the other: political topography has tended to focus on the production and maintenance of enclosure, while political topology has leaned towards flows and processes of becoming.³ Of course, enclosures are produced, and territory is an effect of networked socio-technical practices (Painter, 2010). Thus the two traditions are not mutually exclusive and our point is not an ontological one about topology and topography being distinct, or the latter a subtype of the former.⁴ Our point here is methodological. We suggest that a fruitful way for empirically grasping the changing political geometries (Massey) of infrastructure hubs is to draw together insights from both traditions.

This is crucial to counter the tendency to salute diminished territorial powers and expanding flows as if they were paving the way for universal rights and mobility instead of paying attention to forms of power and authority that operate through global technologies and practices of logistics (Cowen 2014). Instead of celebrating fragility and ever more opportunities for change as such, it is also important to capture the moorings on which these very flows rely. While infrastructures of logistics encapsulate the epitome of contemporary ideas of mobility, we must detect topological and topographical technologies of security and human labour exploitation from Dubai to Dar.

This section therefore reviews the respective methodological strengths of political topography and topology, and retrieves a ‘topographical’ heuristic drawing from both. Ports make visible the reconfiguration of surface space including processes through which bounded space, and claims to authority over it, serve as political technology (Painter, 2010; Sack, 1986). Political topography has a lot to offer here as it asks how power maps onto physical space, tracing the imprint of claims to authority in physical space. A topological sensibility has shed light more on how relations of proximity and distance, disconnected from measurable distance, shape infrastructure as they are put into play politically.

In the past though, topography and topology have been pitted against one another (Paasi, 2011). Emboldened by the fact that territoriality has endured as a crucial governmental technology, ‘topographists’ have defended the merit of long-held views concerning authority over physical space (Mann, 1984; Peet, 2007). ‘Topologists’, in response, argued that globalization is relentlessly re-configuring power within and beyond territories and metric distance (Allen, 2009, 2011; Jones and Jessop, 2010). Fixity versus mobility, absolute versus relative space: the opposition of these pairs has overdrawn the supposed binary between the two.

More recently, the dust from the controversy has begun to settle (Elden, 2011; Harvey, 2012; Prince, 2016). While drawing on a topological understanding of power, it remains important not to move from a ‘territorial trap’ into a ‘non-territorial’ one (Jones, 2009; Opitz and Tellmann, 2012: 264). Making things global by making them move through ports is subject to territorial constraints as much as topological forces (Allen, 2009: 197–198). Nodes of infrastructure are hence ‘site[s] of intersection between networked topologies and

territorial legacies' (Massey, 2005: 102) in which the distant and the proximate, the virtual and the material, and flow and fixity are folded together.

It is therefore worthwhile to extract the tools that the literatures on political topography and topology offer to grasp these multiple spatialities. In work on political topography, power usually has 'location and extension [...] and supposes physical distances which consist of measurable spans of the globe [...], and who [...] is capable of controlling such distances' (Allen, 2011: 284). With regards to location, political topography is interested in the expression of power and authority in physical space and how a particular spatiality of power, such as territory, is produced (Boone, 2003). Topographical maps place vegetation, settlements, infrastructure in two-dimensional space, and provide the metric distance between these elements. Political topographies, in turn, capture power relations as projected over physical space.

Surveying authority over surface space, political topography has thus been concerned with the study of the whereabouts of power, in and around singular sites and with its extension and gradient across regions. Accordingly, work on political topography has aspired to read relations of power, and shifts in these relations, from physical barriers, buildings and legal, political and social practice in space (e.g. Sassen, 2006). It has also expanded to 'spatialise' how and where power operates within states, including power relationships between the centre and periphery, and their singular trajectories in response to local factors (Boone, 2003; Ferguson and Gupta, 2002; Hönke, 2010). Political topographies also map networks and flows; a topography of expert knowledge for instance places research institutions and epistemic communities on a traditional, metric map.

Political topography has thus much to offer for studying infrastructure hubs such as ports. The tools we draw from it are, first, to include the study of representations of physical boundaries as viewed by planners and governors, and to trace claims to authority over (parts of) the port. To trace such representations, the collection and analysis of policy documents, maps and regulatory texts is required. This should be complemented and contrasted with the tracing of objects, and analysis of symbols of claims to authority placed in surface space, and an interpretation of everyday practices of governing physical space.

Nevertheless, political topography has limitations that impoverish the study of spatialities of power. Linked to an underlying idea of compartmentalized, territorial zones of authority, political topographies have a tendency to focus on particular products of space making, and the strategies of such fixing (Jones, 2009). However, contemporary practices of security, for instance, extend border management 'outward into the ports of foreign states [...] and] inward along domestic transport networks' (Cowen, 2014: 81). Furthermore, variation in policy changes cannot be understood without the stretching and folding of near and far: of what is made present and what is kept at a distance or excluded from debate (Prince, 2016). This point is crucial for students of infrastructure space, as the contemporary folding and stretching of state borders works in ways topography alone has difficulties in fully grasping.

Work on political topology stresses how relations make up and endlessly reconstitute space. Importantly, political topology goes beyond 'the metrics of size, distance and length' (Allen, 2016: 8) and draws attention to who and which ideas extend influence, unrelated to physical closeness. Indeed, who creates and shapes space is often independent from proximity and distance in a Euclidian sense, as we will discuss below with regard to port rankings and the powerful idea of the 'Dubai model' in Tanzanian port reforms. Such an approach is also helpful for thinking space as made up of 'intensive relationships which create the distances between powerful and not so powerful actors' (Allen, 2011: 284; also Massey, 2005).

In this regard, it becomes crucial to trace processes of ‘presencing’ (Prince, 2016: 4), and thus processes that construct proximity. Publics might for instance be mobilized in a way that brings an issue and a locality close to people who are physically thousands of miles away. Similarly, the possibilities for political action are constituted not only by those ‘in a place’ but by discourses, technologies and other practices (of lean production, efficiency and seamless space) circulating across boundaries. We advance a focus on two specific processes in particular.

The first concerns the imaginaries attached to, and generated by, nodes of infrastructure, which render distant objects closer or farther. Infrastructures do not only perform technical functions; they also generate visions and evoke desire (Larkin, 2013). There is a long tradition of using large-scale infrastructures to represent state power to its citizens (Chalfin, 2010b; Swyngedouw, 2007). As the anthropology of the state has shown, roads, dams and massive buildings enact ‘the state’ (Larkin, 2013). The seductions of modern futures that they encapsulate work powerfully when a slum dweller in Kinshasa, whose home was brutally removed from the site for new buildings, states ‘Yes, we’ll be the victims [...] but still it will be beautiful’ (De Boeck, 2011: 278). But powerful imaginaries can of course work in different ways. In fact, more and more political projects are advanced today by invoking less state-focussed and rather ‘topological imaginations’ (Marres, 2012). Such imaginations share commitments to ideas of flows, virtual space and social networks but often do not commit to openness and change inherent within many topological theories of the social (Marres, 2012). In any case, appreciation may well be disconnected from functionality. Debate surrounding the port of Dar es Salaam hints as to how infrastructure comes to represent ‘the possibility of being modern, of having a future, or the foreclosing of that possibility’ (Larkin, 2013: 333; Sneath et al., 2009). In terms of methods, such meanings can be read from official texts as well as from the everyday sayings and doings of technocrats and practitioners who build, work at and use infrastructure.

The second process refers to mobilizing the agency of technology and infrastructure. Literature on political topography treats things in space as *representative* of claims to authority – whether by the state or other actors. This is limited as infrastructure also *does* something. It makes up space, opening up possibilities while making other courses of action less likely. As MacKenzie (2006: 12) has shown, models and technical devices do not simply describe and help operate the economy – transport through ports in our case –, they are ‘engine[s]’: an ‘active force transforming its environment, not a camera passively recording it’. They draw actors into specific ways of understanding the world and acting in it (Easterling, 2014). Benchmarkings and rankings are one such technology that draws sites closer, or apart, in ways that do not correspond to their physical proximity. They are a device to make distant concerns felt in Tanzania, and in Dar for that matter, by placing the port of Dar in a virtual comparative relation with other sites elsewhere (Larner and Le Heron, 2002; Prince, 2016). According to Barry, technologies of compatibility and harmonization form a space of their own – made up of common measurements, integrated systems of production and common regulatory and quality standards (Barry, 2006: 240) – that remains invisible through a topographical lens. The idea of ‘technological zones’ he advances is thus helpful to grasp the broader political geography of ports.

Similar to imaginaries, technical devices shed light on the relations mobilized around infrastructure hubs that construct inclusion and exclusion in specific ways. Both transform experiences of proximity and distance, of accelerated speed but also of new forms of exclusion. They embody politics by making issues visible, creating necessities and ascribing authority in new ways. Such processes do not imply that powerful machines

operate for the market and against the state. Rather, as Louise Amoore (2013) has argued in the context of the ‘War on Terror’, computational models and other technology often coproduce and authorize sovereign acts with and for states.

To summarize this section, a topological stance on socio-spatial relations is crucial for understanding the political geographies of infrastructure hubs. But to embrace the idea that our world is made up of relations and hence more fluid and open to constant change than traditionally assumed does not imply to ‘replace topography [...] with a topological theory of space, place and politics as encounter, performed and fluid’ (Jones, 2009: 492). As argued above, flows and bounded space are both historically specific products of relations. They co-evolve. Ports are an excellent illustration of how flows and movement remain constrained by historically inherited spatial fixes and new territorializing strategies, which at the same time provide the conditions that enable them. Political spatialities are ‘stories so far’, yet there are strategies of fixing space or making things move, and their products, that can be traced however unstable and open to change these might be. To do so, a ‘topological’ methodology that draws from the rich tradition of political topography and political topology, is best attuned to capture changing political spatialities of infrastructure hubs. The port of Dar es Salaam will serve to explore the political geography of a maritime infrastructure hub based on the above.

The re-emergence of infrastructure investment in Africa and the port of Dar es Salaam

African infrastructure, and ports in particular, are back on the international agenda,⁵ as forcefully as in the high times of modernization theory in the 1950s and 60s. Over the past 30 years, the scale and integration of the shipping and logistics industry have increased substantially, with economic financialization and deregulation further easing transoceanic trade and transforming ports, and containers spearheading a revolution in transport (Levinson, 2006). In addition, a new international agenda around infrastructure is built on the vision that more physical infrastructure spurs economic growth, by integrating the continent both internally as well as into the global economy (Calderón, 2009). The 24th summit of the African Union discussed infrastructure as one of three major themes, underscoring the extent to which this vision has been embraced by African governments (AU, African Union, 2015). In Tanzania, several port projects are under way. One is the refurbishment of the port of Dar es Salaam, jointly funded by the World Bank, the UK Department for International Development (DFID) and TradeMark East Africa (USD 565-596 million – sources differ as to the exact figure).⁶

The port of Dar es Salaam is one of the largest ports in sub-Saharan Africa. Both the German and the British favoured Dar es Salaam, which soon outpaced what had hitherto been the main port, Bagamoyo.⁷ Thereafter, under British rule, cargo handling swelled from 1938 to 1956 (Hance and Van Dongen, 1958), while after independence in 1961 cargo throughput increased fourfold in the decade ending in 1975 (Hoyle, 1978). The decades of structural adjustment and economic recovery brought a period of uncertainty for the port, as well as tighter competition from neighbouring seaports. The latter is stressed in the more recent, dominant narrative about Dar es Salaam port. This account portrays the port in relentless competition with Mombasa for the status of main gateway to East Africa (Wood, 2004). The portrait is misleading, however, as even though Dar es Salaam continues to handle approximately 90% of Tanzania’s international trade, only 30% of it corresponds with trans-shipment cargo to and from Zambia, Malawi, the Democratic Republic of Congo (DRC), Burundi and Rwanda (AfDB, African Development Bank, 2010). In addition, this

dominant narrative underlines congestion. To do so, it draws heavily on oft-quoted official figures showing that throughput has recently increased by 10% annually, and that containerized imports and total throughput have equally skyrocketed, exceeding the estimated capacity of the port to handle Twenty Foot Equivalent Units (TEUs) by 30% (Shkaratan, 2012; TPA, 2014; World Bank, 2013, 2014).

The cardinal nature of the port of Dar es Salaam as logistical hub of the city itself, of Tanzania and of the broader region makes it a crucial site through which to observe new political geographies as they emerge around such infrastructure hubs.

Multiple claims to authority in an expanding archipelago of territories

Until the early 2000s, Dar port was run by the Tanzanian Port Authority (TPA). Under state ownership and management, the port physical layout had changed very little, despite recurrent donor-funded investments from the late 1950s to the early 1990s. With only minor alterations, in the 2000s port boundaries still remained circumscribed to the location designated by German colonial administrators in the Kurasini Ward, to the south of the Central Business District. While the port did not undergo any major regeneration, that was not the case for the city of Dar es Salaam. Its unplanned geographical expansion – today stretching over 1800 square kilometres – gradually encircled the port with residential, commercial and, to a lesser extent, industrial areas.

From the late 1990s onwards, however, the port of Dar es Salaam became a shorthand, in the words of policymakers and donors, for bottlenecks and congestion. According to experts' reports and the media, the port had turned into a vast 'storage area'; this internal congestion engulfed nearby roads, rendering them massive bottlenecks that asphyxiated cargo flows. It was in 2006 that the government conceived the first expansion of the port: an expansion of the Oil Jetty over Kurasini that involved the resettlement of 36,000 residents (Ndezi, 2009). More recently, the port encroached into the urban fabric and metamorphosed internally, with parts of it handed over to private management. Congestion coupled with the ideal of the 'port-as-gateway' (see more detailed discussion below) instigated port territorialities to mutate along two lines throughout the 2000s. Firstly, the port logistical area expanded over nearby quarters through a patchwork of Inland Container Depots (ICDs). Secondly, the privatization of parts of the port transformed its layout and re-articulated authority over circulation.

First, TPA adopted the idea of ICDs from more industrialized port cities in order to expand storage capacity and ease clearance procedures. The creation of ICDs added to an array of ever-increasing port-related logistical satellites that came to colonize spaces beyond the port gates. Firstly, across the port road, existing container warehouses were expanded and new ones inaugurated; secondly, towards the southeast, oil storage facilities swelled; thirdly, about a dozen ICDs gradually opened. Thereby, ICDs came into existence in the latter half of the 2000s, premised upon the rationale of alleviating storage constraints within the port by transferring a proportion of the incoming containers and vehicles to mostly privately managed facilities until clearance. Still, revenue authorities perform in situ clearance procedures; and routine or impromptu verifications of quality, and weights and measures, amongst others, are carried out here by other governmental agencies. Progressive drops in dwell time animated the government to gradually license more ICDs to private logistical operators, up to the present stock of about a dozen such depots. Scattered over a radius of twelve kilometres, ICDs established themselves principally along the road to the airport and Ubungu, while some preferred the vicinities of Dar's main Export Processing Zone. In so doing, ICDs outlined an 'archipelago' of commercially run, state-supervised

logistical facilities. This archipelago not only redefined the boundaries of the port, but also rearticulated its economic and political geography by means of renewed relations premised upon proximity to the port – metric and social in terms of relations with port authorities. On the latter, in the eyes of some consignees, ICDs brought about collusive business relations between private owners and top officials in TPA, who secured protection and more activity to certain ICDs.⁸

In addition, the expansion of ICDs and other satellite activities re-invoked a territorial exercise of authority in its most classical and indeed repressive sense. Territoriality is a modern political technology that comes with the sovereign exercise of force (Sack, 1986) in order to police access to the port or port-related facilities. When the expansion of port-related activities encroached upon areas in the vicinities of the port, several communities were displaced from their neighbourhoods. When in 2009 the government launched an expansion of the Kurasini Oil Jetty, for example, it led to the resettlement of more than 36,000 people from the Kurasini ward (Ndezi, 2009). Crucially, territory as a technology of exerting political authority is not necessarily restricted to state authority. In the case of the ICDs, the splitting of handling and storage operations between state and commercial operators mutated the exercise of territoriality from a state-centred to an enmeshed public–private arrangement in which public authority became re-envisioned as operating through commercial tools and expertise.⁹

Secondly, in the early 2000s cargo and container operations were split into two terminals, and the container terminal was handed over to a private operator, Tanzania International Container Terminal Services Ltd (TICTS). TICTS is a joint venture between world-leading port operator Hutchison Port Holdings of Hong Kong and a Tanzanian business group. Hence, TICTS started to handle exclusively the containerized cargo mooring in berths 8 to 11, as well as utilizing the largest section of the container yard for temporary storage. This change expressed a shift not only in who wields authority, but also in what authority is ascribed to. Privatization was anticipated to increase the efficiency of the port and transform it into a more profitability venture.

It could be argued that, with the new public–private arrangement, the TPA saw its role diminish as the operation of the container terminal was outsourced. In contrast to fully privatized models, however, the Tanzania Port Authority retained the operation of the remaining berths and, in accordance with its handling of bulk cargo, most sheds and warehouses providing storage capacity for non-containerized cargo remained under their administration. Furthermore, Tanzania adopted a ‘landlord’ port model so that state agencies retained a wealth of regulatory capacities within the port premises across both terminals. The Tanzania Revenue Authority (TRA) retained its core jurisdiction over taxation of trade activities. In particular, it remains the sole agency allowed to authorize the displacement of containers, or bulk cargo, inside and/or outside the port. Other state agencies perform a variety of controls that may also alter traffic flows. A diminishment of state power is thus not the outcome of these transformations, as some critics of privatization might have it. Rather, ideas and practices of how the port should be run changed and became rearticulated in transnational ‘modes of government’ through devolution of practices to companies, individuals and other intermediaries (Ferguson and Gupta, 2002: 989–990; also Ong, 2006). On the one hand, it is ‘the state’ itself that is made through such transnational practices, and indeed domestic elites use them to (re)produce the state in new ways (Ong, 2006, also Mitchell, 2002). On the other, ‘transnational apparatuses of governmentality [...] overlay[...] and coexist[...] with older, nation-state based modes of governance’ (Mitchell, 2002: 994).

Through the lens of political topography, another transformation of authority comes to light – the evolving transnational relations of public agents. Thus, for instance, the

establishment of the Fair Competition Commission (FCC) installed a new mediator between multinational corporations and the port authorities. Attempts on the part of the FCC to enforce anti-counterfeit regulations anchored locally the efforts of multinationals such as Samsung, Phillips and Unilever to protect their high value trade across transnational routes and market places. While therefore, engineers and representatives from these multinational companies need only descend upon Tanzania once every three months, through the FCC's mediation they oversee their interests in the Tanzanian market from a distance. As Sidaway (2007) supposed, transport hubs such as ports can indeed 'be read as spaces of sovereign graduation'.

This is further supported by the continued relationship of port-related authorities with the European Commission, the World Bank and DFID. In particular, the World Bank and DFID – through the multi-donor funded TradeMark East Africa – footed the USD 565 million bill for the refurbishment of Dar port and its vicinities. The project, launched in 2015, aims to reduce ship turnaround and container dwell time to increase throughput (World Bank, 2014). In addition to material resource, international donors provide the intellectual justification for such agenda, in accordance with the 'Big Results Now' narrative. This initiative was inspired by the 'Malaysian Development Model' and has been implemented since 2013 to deliver quantifiable policy outcomes in six priority areas. Predicated upon the trinity of trade, investment and poverty reduction, this 'theory of change' anticipates increased physical access to markets, an enhanced trade environment and improved business competitiveness.¹⁰ The external actors' ideological proximity finds a parallel in the physical closeness of their offices situated in the business district of Dar.

The above topographical analysis of the changing political geographies of Dar port focused on the physical outlet of the port as well as the way in which relations of political authority are re-articulated, and exerted differently by various actors. A new archipelago of territorialities has taken shape where previously the port existed alone, and is managed by a heterogeneous set of actors with distinct, graduated (Ong, 2006) claims to authority over particular issue areas and spaces. The Dar hub for maritime transport extended ever further into the urban fabric, thereby dislodging people to make space for further throughput of goods. Inspired by global logistical discourses and technologies, authorities framed such an endeavour under a nascent topological imagination of the port as globally connected, 'seamless' space. The changes in the port's surface space and political topography, therefore, need to be understood in this context: the shift from 'port-as-checkpoint' to 'port-as-gateway'. Some of the most powerful transformations of political geography are not traceable through a focus on changes in Euclidian space or claims to formal authority over it as drawn from the literature on political topography.

Gateway imaginaries, technological zones and modernity 'from scratch'

In recasting the port of Dar es Salaam from port-as-checkpoint to gateway, port stakeholders enact visions of circulation and flow, and (re)produce zones, which together perform seamless space. Power topologies afford the substrates that coproduce and legitimize transformations of port geographies. This will be illustrated in the three following subsections. The first revolves around 'gateways' and 'seamless space' as discursive tropes, and benchmarking as technology that situates the port against a network of regional port facilities. The second shows how standards and technical devices further bridge historical difference in order to render Dar port a smooth part of a transcontinental technological zone. The third part demonstrates how the gateway ideal in

Tanzania comes wrapped in new notions of modernity that weave imagery of a Dubai-style exuberant development into the standardized efficiency of global capitalism pitching reform of the old Dar port against a project of building a new port altogether.

In tagging the three processes as topological, we do not wish to downplay their close entanglement with the described topographical ideas and practices. The very argument is that metric relations of power, proximity and distance co-evolve with non-Euclidian relations, and that methodologically drawing from political topography and topology is most fruitful to understand the multiple and changing spatialities of the port of Dar es Salaam.

From port-as-checkpoint to 'gateway' and 'seam-space'

The idea of ports as gateways establishes the port as a 'somewhere' that is not about boundaries but movement and connections: a paramount link in a chain binding sea and land, facilitating the flow of goods through transport corridors. Yet at the same time, ports are critical nodes of infrastructure that, as much as they enable connectivity, also allow multiple actors to control these global connections with a territorial logic. This double function is expressed in a project based on what Marres (2012) refers to as topological imaginaries: to transform the port of Dar from an enclave to a 'gateway' (TPA, 2016a; World Bank, 2014).

In the early 2000s, figures for dwell time in the port of Dar es Salaam steadily increased due to the concern of port authorities with pilferage and corruption, which led, in turn, to focus on clearing procedures.¹¹ Rising warehousing costs and a leisurely grace period – 14 days for domestic cargo – had turned the port of Dar into a huge storing area, thus defeating the purpose of a transit facility. Yet such insistence also permeated that port authorities saw the port as a checkpoint rather than one link along a chain of logistical infrastructure. Every link in the chain – the road linking the port to the ICDs, transshipment facilities, weighbridges, and checkpoints – thus constituted a bottleneck, potential or actualized; or, in the grammar of port stakeholders, a source of 'congestion' or a 'thin pipe.'¹²

Yet ideas about the port changed over time. References began to appear in policy documents culminating in the 2016 port handbook, which included: 'new gateways to the hinterland'; or as 'the Indian Ocean terminus of a complex logistics network stretching across much of Central Africa' (TPA, 2016b: 3, 9). Reference to other ports such as Mombasa became crucial in this process. Senior ministerial officers, authorities sitting in the port and donors increasingly pitted the underperformance of Dar es Salaam against that of Mombasa, and vice versa, as a means to legitimize additional spatial interventions.

These observations reflect a second facet of the transition from port-as-checkpoint to gateway wedded to region building: imaginaries of regional closeness and benchmarking drew Dar's neighbours closer. Such 'presencing' (Prince, 2016) supported reforms towards further integration. In its most physical manifestation, this transition envisaged reinforcing two trade arteries: the Central Corridor (from Dar es Salaam to Rwanda, Burundi and the DRC), as well as the Southern Corridor (Dar es Salaam to Zambia). In a less physical sense, such reinforcement aimed to reduce the time it takes a container to reach Rwanda, Burundi, the DRC, Zambia and Malawi from Dar es Salaam. Symbolically, this project compounded the heightening in visibility of the geographical chain binding the port with final destinations.

In Dar, such heightening and presencing occurs by means of an array of initiatives. First, the documents produced by port authorities and donors reproduce *ad nauseam* selectively picked indicators of port performance, notably dwell time and the average time or cost

required to transport a container from the port to Rwanda, and compare them with the same metrics for Mombasa. Port authorities, clearing agents and transporters indeed speak of distances to Rwanda in days, not in kilometres, exemplifying how they quantify seamlessness in dwell time.¹³ Also, international actors such as Trademark East Africa and the Central Corridor Transport Observatory enact benchmarking exercises to assess the efficiency of the port – benchmarks that render the port of Dar es Salaam comparable (TMEA, TradeMark East Africa and CCTTFA, Central Corridor Transit Transport Facilitation Authority, 2014). Benchmarking exercises, as those undertaken in the reports of the World Bank, TradeMark East Africa, and the CCTTFA, are crucial to rendering logistical infrastructures comparable and, thus, suitable for common regulatory standards (Barry, 2006), as will be detailed in the next section. Second, in their discourses port stakeholders invariably deprecate the roadblocks, weighbridges and other facilities along the way to other east African destinations. In their views, each roadblock removed equates a victory against the plague of congestion.

What is invoked, therefore, is the port as part of a seamless space. The gateway metaphor speaks of seamless flows through the port and related corridors, with such seamlessness measured in dwell time metrics. In that sense, ‘drawing closer’ does not topographically shrink distances measured in kilometres, but instead topologically compresses space. However, as noted by Marres (2012), topological *visions* might bring about such effects in the first place.

Technological zones and the power of technical devices

A second element of the political topology of ports is the laws of logistics. Related technologies have come to govern many of the flows moved by ship (Cowen, 2014), and subsequently through Dar port. Dar, as imagined by port authorities and donors alike, resembles other major ports worldwide, whereby ensuring that traffic functions ‘seamlessly’ comes with new information systems to shorten waiting times and to ‘secure’ traffic in specific ways.

In particular, a new e-customs technology was introduced at Dar port. The Tanzanian Revenue Authority launched the Tanzania Customs Integrated System (TANCIS) in 2014, ‘built on hi-tech principles with a view to increasing effectiveness, efficiency, transparency, and reliability in the Customs administration’.¹⁴ TANCIS follows similar systems introduced in Hong Kong (1986), Singapore (1989–1991), Malaysia (1996–2004), Ghana (2001) and Nigeria (2009). Kenya also joined in 2015. Crucially, TANCIS has since substituted physical encounters between tax officials and clearing agents in favour of electronic procedures to handle Pre-Arrival Declarations. The new technical device powerfully transformed who controls, or may interfere for that matter, with flows of cargo, further integrating Dar port into a ‘global’ gateway infrastructure. The new technology also made it possible to dispense of cashmen and messengers who previously roamed around the city and port. However, it did not fully supplant previous practice, with some handling still carried out on paper. This facilitated tax agents to switch from virtual to physical environment at their convenience and thus retain a more autonomous margin for manoeuvre in governing port activities.¹⁵ This technological zone is thus characterized by substantial frictions. Nevertheless, it is a bounded space governed and defined by technical standards and harmonized technology, not physical boundaries (Barry, 2006). Indeed, globalized production, supply chains and logistics systems generate transformations of the conception of border.

However, while ‘seam space’ is (re)produced by international standards and technology, which include electronic biometric technologies (Cowen, 2010: 606) and e-customs systems,

technologies are also important in producing territoriality as still important mode of governing global flows (Opitz and Tellmann, 2012). The port authority of Dar es Salaam, with the assistance of the World Bank, installed 465 closed-circuit television sets, and purchased patrol boats and vehicles. It commissioned an Integrated Security System in 2015, introducing electronic security cards for secure access to facilities, and endorsed the use of scanners at the entrance gates (TPA, 2016b). Displayed on security signs at each gate is that '[t]he port is ISPS Code compliant', ISPS referring to the International Ship and Port Facility Security Code, which applies to 20,000 ports worldwide.¹⁶ Annual inspections by external auditors ensure compliance. In reality, there are of course persistent holes in the security arrangements. When it comes to officers policing port gates, and as explained by the Acting Port Manager: 'the decision that who should be allowed, who should not be allowed depends on the person there. He's the final decider [...] so [...] it's not a control per se, because it depends on how do you persuade him.'¹⁷ Nevertheless, the project to bring the port 'up to international standards' is a powerful trope that shapes the port's political geography.

What TANCIS and international security standards reveal, therefore, is not so much the resilience of shady settlements, but rather the association of the port, and of port authorities, with a conundrum of technologies, software and equipment that make up a transboundary technological zone. Within it, it becomes possible to connect to, but also to assess and contrast Dar with other ports worldwide. Far from being merely a-political technical devices, the notion of the technological zone captures more invisible connections and enclosures that channel flows through Dar and the broader east African region.

Topologies of anticipation and modernity 'from scratch': Bringing Dubai to Bagamoyo

A final, striking feature of Dar port topology is that debates around Tanzanian ports reinvigorate imaginaries of modernity that are as prevalent as in the 1960s. Consequently, discourses broadcast by port authorities and donors about the port frequently pit notions of old, congested or unfit structures against the anticipated possibilities of new facilities to be built from scratch. This is visible in representations of port terminals as old and backwards versus new, but more crucially in the debate over increasing efficiency of Dar port versus constructing a new mega-port at Bagamoyo.

Especially the latter illustrates how infrastructure comes to represent 'the possibility of being modern, of having a future, or the foreclosing of that possibility' (Larkin, 2013: 333). The mega-port project was presented by the Kikwete government as making the Tanzanian state a 'gateway' to modernity. The modernity envisioned here no longer follows Western models though but the archetype of new special zones of development, Dubai (see also Sidaway, 2007). The Bagamoyo port project was originally conceived of as relatively small two-berth, USD 225 million port in the mid-2000s. By 2009, however, it had expanded into a USD 680 million facility (TPA, 2009) and by 2013 a USD 10 billion brand new port, funded by China and Oman, with a capacity to handle 20 million TEUs – about thirty times the 2014 throughput of Dar es Salaam (TPA, 2015). The announcement in 2013 served to escalate further the 'space race' with the Kenyan government, which by then had stated its intention to build a USD 13 billion mega-port in Lamu. President Kikwete ventured to lay the foundation stone of the Bagamoyo port during the electoral campaign of 2015; his successor Magufuli shelved the project three months later but only postponed the start of construction to 2017.

The project of modernity represented by Bagamoyo, albeit contested by a fraction of the political elites, operates by means of a twofold movement.¹⁹ On the one hand, its promoters tarnish the existing port of Dar, and deprecate it as old and un-modern, treating in interviews

old infrastructures, personnel and practices as superfluous, even troublesome clutter that cannot be modernized. This provides the foundation for the second movement: presenting the inescapable need for a new port to be built from scratch. Thus, in the interim between 2013 and 2015, public authorities had enthusiastically embraced the prospect of the new port in an undeveloped location as the durable solution to the problems of space within the port and of congestion around it. Interestingly for the analysis in hand, imaginaries of modernity recurrently surfaced in the controversies about the Bagamoyo project.¹⁹ Powerful narratives of hope permeated port reforms, suggesting that notions of 'unreconstructed modernism' (Abbink, 2012) still instigate and legitimate large-scale infrastructure projects.

Apart from the World Bank narrative of the port as gateway to economic growth, these hopes are centred around distinct 'economies of anticipation' (Cross, 2015) attached to a 'Dubai model'. The Tanzanian president stated in 2014: 'If we invest in logistic centres, improve on infrastructure and create a facilitative environment, we can easily turn Dar es Salaam into another Dubai of its kind'.²⁰ This idea was then adhered to the new Bagamoyo mega-project. The content of this Dubai model remained rather vague, but included what Chorin (2010) refers to as the standard use of the term: to emulate Dubai's exceptional development including its logistics facilities (despite Dubai's unique circumstances). Cowen's (2014) work on the Dubai Logistics City indeed strongly resonates with the narratives underpinning the Bagamoyo scheme: the seamlessness that the Dubai Logistics City so aptly underpins the Bagamoyo project as the enactment of a new, exceptional zone of development in the vicinity of Dar es Salaam. So far, only feasibility studies and initial construction work have been undertaken, and people have been resettled from the Mbegani area.²¹ While difficult to emulate and still with an uncertain future, as powerful vision, Dubai has been folded into Tanzanian debates over maritime transport and urban development.

Conclusion

This article looked at Dar es Salam port (and its unbuilt competitor Bagamoyo to some extent) as a window onto new political geographies of large-scale economic infrastructures. It argued for drawing on political topography and topology for a topological methodology in order to capture processes of making flow, and fixing, which together make up contemporary political geographies of infrastructure hubs. Instead of treating them as irreconcilable ontological traditions, we argued for complimentary synthesis to adequately understand flows as imbued with claims to power and authority, and fluid potential for change as embedded in moorings on which flows very much rely. While infrastructures of logistics encapsulate ideas of mobility, their geography crucially includes topological and topographical technologies of security, exclusion and exploitation.

In this regard, we argued that political topography draws attention to *where* the port is and who is afforded authority over its surface space, but that there is more to the rescaling of political geographies than this captures. Drawing on the literature on political topology, other dimensions matter, such as the projection of power across distance, and the drawing close of distant others independent from formal authority and physical presence. Two key devices do this work: imaginaries associated with infrastructure, and technical devices. Both are actively involved in the politics of infrastructure, opening up possibilities while making other courses of action less likely. Building on this combined heuristic, we have shown how Dar port evolved into an archipelago of territorialities that transcends well beyond its traditional boundaries; and that relations that reproduce territorial authority mutated over time and became dispersed and graduated between various state agents and petty

bureaucrats, international organizations and logistics, shipping and other multinational companies. As such, authority has become dispersed and exercised via intermediaries, most importantly commercial operators.

However, thinking through political topology revealed important dimensions of a reconfiguration of political geographies traditional political topography fails to capture. First, a project of topological compression shaped the very political topography of Dar port. Imageries of the port moved from port-as-checkpoint to 'gateway'. Together with rankings that benchmarked Dar against other ports, these drew distant places closer to Dar and made the concerns of distant others felt more keenly in the port and shaped port reforms. In addition, technical devices were crucial in constituting the port as part of technological zones in which the exercise of power is diffuse and hides itself as it works via seemingly a-political standards and technology. Finally, the controversy over the refurbishment of Dar port versus building a new mega-port at Bagamoyo illustrated how large-scale economic infrastructure cannot be understood without due consideration of new topologies of anticipation of modernity. Hugely understudied, in Dar these do not revolve around a Western model but fold a Dubai City inspired aspiration to development into the politics of infrastructure. The idea of a 'Dubai model' here was mobilized for plans to build 'modernity from scratch' where once the old slave port of Bagamoyo was.

Large-scale economic infrastructures are indeed crucial entry points for making the workings of global politics more visible, and for capturing future spatialities of zones and (channelled) flows. The topographical methodology suggested here addresses precisely the intersection of the production of territories and flows, and the power topographies and topologies making these possible. Much work lies ahead to understand the contentious re-spacing of political geographies around large-scale economic infrastructures. This article has hopefully contributed a useful approach to this endeavor.

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Notes

1. See the Big Results Now website: www.pmoralg.go.tz/quick-menu/brn/ (accessed 30 March 2016).
2. Complementing the broader vision of an East and Central African Corridor Project by the Infrastructure Consortium for Africa. See The World Bank (n.d.) Dar es Salaam Maritime Gateway Project. Available at: www.worldbank.org/projects/P150496?lang=en (accessed 26 May 2016); The Infrastructure Consortium for Africa (n.d.) Eastern and Central Transport Corridor. Available at: www.icafrica.org/en/topics-programmes/eastern-and-central-transport-corridors/ (accessed 26 May 2016).
3. For a critique of this tendency to dichotomy, see Martin and Secor (2014).
4. It has recently been suggested to understand topography as a particular dimension of topology: that of Euclidean geometry (Martin and Secor, 2014) and the “numbers, distribution, movements, and connections across [such] Euclidean surface space” (McFarlane, 2016: 632).
5. See for example the Infrastructure Consortium for Africa, www.icafrica.org/en/. Also Ford (2006).
6. The World Bank (2014) Tanzania today signed a memorandum of understanding with a coalition of development partners to develop Dar es Salaam port. Available at: www.worldbank.org/en/news/press-release/2014/09/12/memorandum-of-understanding-coalition-of-development-partners-dar-es-salaam-port (accessed 27 May 2016).
7. For the politics around shifting the main colonial port away from Bagamoyo to Dar, see Fabian (2007).
8. Anonymous Consignee (2016). Interview 28 April, Dar es Salaam.
9. This shift has not been without frictions and contestation. People refused to resettle, and within the port archipelago, petty sovereigns – state and non-state, and from various agencies – struggle over power and authority. It will require another article to expand on these processes.
10. According to TradeMark East Africa’s website: www.trademarka.com (accessed 27 May 2016).
11. Mwanyange J (2008) TRA cracks down on fake import papers. *The East African*, 23 June, 2008. Available at: www.theeastafrican.co.ke/news/-/2558/440644/-/s3sb5vz/-/index.html (accessed 27 May 2016).
12. Anonymous Logistical Operator (2015). Interview 27 April.
13. Central Corridor Transit Transport Facilitation Authority (n.d.). Inland Container Depots. Available at: <http://centralcorridor-ttfa.org/infrastructure/inland-container-depots/> (accessed 26 May 2016).
14. Tanzania Revenue Authority (n.d.). What is TANCIS? Available at: www.tra.go.tz/index.php/faqs/405-what-is-tancis (accessed 26 May 2016).
15. Anonymous Freight Forwarder (2015) Interview 14 April, Dar es Salaam; also Masasi J (2015) Interview 27 April, Dar es Salaam.
16. International Maritime Organization (n.d.). Solas XI-2 and the ISPS Code. Available at: www.imo.org/en/OurWork/Security/Guide_to_Maritime_Security/Pages/SOLAS-XI-2%20ISPS%20Code.aspx (accessed 27 May 2016).
17. Mhanga H (2015). Interview 28 April, Dar es Salaam.
18. We do not deny that such infrastructural projects are also about gaining access to government contracts and rewarding patron–client networks. This was evident, for example, in the sacking of the TPA’s top management and the disbanding of its board by President Magufuli in December 2015 on corruption charges. It is rather that clientelist patterns of resource distribution cannot tell the whole story.
19. ‘From scratch’ would of course only be partly true as Bagamoyo district hosts one of the oldest ports on the east African coast – see Fabian (2007).

20. Blair E and Ng'wanakilala F (2014) Tanzania president maps out plan for transport hub. *Reuters*, 11 April, 2014. Available at: www.reuters.com/article/2014/04/11/us-africa-summit-tanzania-transportation-idUSBREA3A1JN20140411 (accessed 27 May 2016).
21. Exact figures are difficult to ascertain. Tanzanian newspapers cite a figure of 2183 residents resettled AND compensated to date – see Mirondo R (2016) Fate of Bagamoyo port clarified. *The Citizen*, 9 January, 2016. Available at: www.thecitizen.co.tz/News/Fate-of-Bagamoyo-Port-clarified/-/1840340/3026666/-/11ug0kd/-/index.html (accessed 27 May 2016).

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